



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,854	03/09/2006	Pierre Grangeat	26889US2PCT	4487
22850	7590	10/17/2007		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER RASHID, DAVID	
			ART UNIT	PAPER NUMBER
			2624	
			NOTIFICATION DATE	DELIVERY MODE
			10/17/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

**Office Action Summary**

Application No.

10/530,854

Applicant(s)

GRANGEAT ET AL.

Examiner

David P. Rashid

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 4/11/2005.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

Art Unit: 2624

### **DETAILED ACTION**

All of the examiner's suggestions presented herein below have been assumed for examination purposes, unless otherwise noted.

#### ***Priority***

1. Receipt is acknowledged of papers submitted (Application # FR 02/12925, filed 4/11/2005), which papers have been placed of record in the file.

#### ***Specification***

2. The following is a quote from 37 CFR 1.72:  
  
(b) A brief abstract of the technical disclosure in the specification must commence on a separate sheet, preferably following the claims, under the heading "Abstract" or "Abstract of the Disclosure." The sheet or sheets presenting the abstract may not include other parts of the application or other material. The abstract in an application filed under 35 U.S.C. 111 may not exceed 150 words in length. The purpose of the abstract is to enable the United States Patent and Trademark Office and the public generally to determine quickly from a cursory inspection the nature and gist of the technical disclosure.
3. The abstract is objected to under 37 CFR 1.72 for failing to use a proper heading – suggest removing header "Descriptive Abstract" and replacing with either "Abstract" or "Abstract of the Disclosure."
4. The disclosure is objected to because of the following informalities:  
  
(i) Abstract, line 12 cites "Fig. 2" – suggest deleting from the abstract  
  
Appropriate correction is required.
5. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without

Art Unit: 2624

underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

### *Claim Objections*

6. **Claims 1 – 5** are objected to because of the following informalities:

- (i) Claim 1, line 23 contains a grammatical error – suggest "inversion given ~~giving~~ said"

Appropriate correction is required.

7. **Claims 2 – 3** are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claims, or amend the claims to place the claims in proper dependent form, or rewrite the claims in independent form.

**Claim 2** is drawn to characterizing such that claim 1 comprises a selection of regions of angles of the sets of projections which are used in the back-projections; however, it is already true that an angle or series of angles would have been selected in the set of projections from claim 1. Whether it is one angle or a series of angles still constitutes "selection of regions of angles".

**Claim 3** has a similar argument replaced with "a number of projections which are used in the back-projection". Claim 1 already requires a number of projections needed and selected, and thus claim 3 fails to further limit.

***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. **Claims 1 – 5** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding **claims 1 – 5**, the claims are drawn to a method as supported in the preamble ("[a] method for reconstructing..."), but the claims recite elements drawn to an apparatus. It is suggested to either convert the method to an apparatus in the preamble, or convert the elements in the claim to those of method steps.

Regarding **claims 2 and 3**, line 2 cites "characterized in that it comprises" but it is unclear what "it" actually is. Is it the method as a whole?, is it a particular step in the method? The examiner is uncertain what step is characterized such that a selection of regions of angels

Art Unit: 2624

of the sets of projections which are used in the back-projections – it is suggested to be specific as to what method step “it” is referring to.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. **Claims 1 – 5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kraske (US 5,841,890 A) in view of Yajima (US 6,148,110 A).

Regarding **claim 1**, while Kraske discloses a method (FIG. 10) for reconstructing an image (FIG. 13) from sets of projections of this image (Col. 4, lines 48 – 55; “two-dimensional projections” in Col. 5, lines 1 – 8), successively comprising:

a series of successive wavelet decompositions (FIG. 10; FIG. 11) of the sets of projections providing thumbnail images (FIG. 12, element 302) of the sets of the projections, comprising images of an approximation (AA) (FIG. 12, element 302) and successive series (Dd, Dh, Dv) (FIG. 12, elements 212, 214, 210) of homologous details of each set (it is implied if not already inherent that there are homologous details in each set),

in each of the series and successively for the thumbnail images of details having an increasing number of points, a search for significant and desirable portions (Col. 12, line 59 – Col. 13, line 3), and a search for homothetic portions of the significant and desirable portions in each of the thumbnail images of details which follow in the series (the search for homothetic portions occurs when the image is reconstructed in FIG. 13 as a desired portion kept will

Art Unit: 2624

“cascade” through the decomposition levels, and thus the homothetic desired portions are retained);

back-projections (FIG. 23, element 512) of the thumbnail images of the thumbnail projection sets of the image to be reconstructed (FIG. 13; FIG. 23, element 506), with omission of the back-projections for all the insignificant portions and all the homothetic portions (Col. 12, line 59 – Col. 13, line 3 wherein “selectively isolate[ing] particular image features” will omit all the insignificant portions and all the homothetic portions of the insignificant portions),

and a combination of thumbnail images (FIG. 23, element 417) to be reconstructed by decomposition inversion (FIG. 13; FIG. 23, element 506) giving said image, Kraske does not directly teach searching for insignificant portions estimated to be lacking in content, and a search for homothetic portions of the insignificant portions in each of the thumbnail images of details which follow in the series (though it can be argued that searching for significant and desirable portions and distinguishing those portions from the rest of the image is also searching for insignificant portions because the rest of the image is in itself the insignificant portion).

Yajima discloses an image data processing apparatus and method (FIG. 1) that teaches searching (FIG. 11) for insignificant portions (cross-hatched portions in FIG. 11) estimated to be lacking in content (“DECIDE THRESHOLD” in FIG. 11), and a search for homothetic portions of the insignificant portions in each of the thumbnail images of details which follow in the series (the cross-hatched portions in FIG. 11 carries through from element 506 to 406, and is discarded).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the searching step of Kraske to include searching for insignificant portions estimated to be lacking in content, and a search for homothetic portions of the insignificant

Art Unit: 2624

portions in each of the thumbnail images of details which follow in the series as taught by Yajima “to provide image data processing apparatus and method capable of solving the above problem and achieving high compression rate.”, Yajima, Col. 2, lines 53 – 55.

Regarding **claim 2**, while Kraske in view of Yajima discloses the method for reconstructing an image according to claim 1, Kraske discloses being characterized in that it comprises a selection of regions of angles ( $\theta$ ) of the sets of projections which are used in the back-projections (FIG. 23, element 417; refer to claim objections section).

Regarding **claim 3**, while Kraske in view of Yajima discloses the method for reconstructing an image according to claim 2, Kraske discloses being characterized in that it comprises the selection of a number of projections (number of lines “n” in projection space element 422 in FIG. 17; FIG. 16, elements 415, 418, 420; FIG. 23, elements 506, 510; refer to claim objections section) which are used in the back-projection (FIG. 23, element 512).

Regarding **claim 4**, while Kraske in view of Yajima discloses the method for reconstructing an image according to claim 2, Kraske discloses being characterized in that the selection of the angle regions (FIG. 23, element 417; refer to claim objections section) is performed according to a support of a Fourier transform (Col. 8, lines 25 – 35) of the wavelet decomposed sets of projections (FIG. 16).

Regarding **claim 5**, while Kraske in view of Yajima discloses the method for reconstructing an image according to claim 2, Kraske discloses characterized in that the selection of the number of projections (number of lines “n” in projection space element 422 in FIG. 17) is performed according to the maximum frequencies of a support (“1D Kernel”, elements 20, 22 in FIG. 18) of a Fourier transform (Col. 8, lines 25 – 35) of the wavelet decomposed projection sets.



Art Unit: 2624

*Conclusion*

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David P. Rashid whose telephone number is (571) 270-1578. The examiner can normally be reached Monday - Friday 8:30 - 17:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on (571) 272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
**VIKKRAM BALI**  
**PRIMARY EXAMINER**

/David P. Rashid/  
Examiner, Art Unit 2624

David P Rashid  
Examiner  
Art Unit 2624